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May 9, 2002

PUB-NO: JP02002129285A

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TITLE: STEEL SHEET WITH STRAIN INDUCED TRANSFORMATION TYPE COMPOSITE STRUCTURE
HAVING EXCELLENT BURRING WORKABILITY AND ITS PRODUCTION METHOD

PUBN-DATE: May 9, 2002

INVENTOR-INFORMATION:

NAME

COUNTRY

YOKOI, TATSUO

TAKAHASHI, MANABU

OKADA, HIROYUKI

INT-CL (IPC): C22C 38/00; C21D 8/02; C21D 9/46; C22C 38/06; C22C 38/58

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a hot rolled steel sheet excellent in fatigue characteristics and burring workability (hole expandability) and having tensile strength of ≥ 540 MPa and to provide a production method for inexpensively and stably producing the same steel sheet.

SOLUTION: This steel sheet with a strain induced transformation type composite structure excellent in burring workability is composed of steel containing 0.01 to 0.3% C, 0.01 to 2% Si, 0.05 to 3% Mn, $\leq 0.1\%$ P, $\leq 0.01\%$ S and 0.005 to 1% Al, and whose microstructure is composed of the composite one containing retained austenite of 5 to 25% by volume fraction, and the balance mainly ferrite and bainite, in which the ferrite average grain size is 2 to 20 μm , and the value obtained by dividing the retained austenite average grain size by the ferrite average grain size is 0.05 to 0.8; and also, the concentration of carbon in the retained austenite is 0.2 to 3%, and, in the method for producing the same steel sheet, steel having the above components is subjected to hot finish rolling so as to be finished at the Ar3 transformation point temperature to the Ar3 transformation point temperature $+100^\circ\text{C}$, is thereafter retained in the temperature range of the Ar3 transformation point temperature to the Ar3 transformation point temperature for 1 to 20 sec, is subsequently cooled at a cooling rate of $\geq 20^\circ\text{C/s}$ and is coiled at a coiling temperature in the temperature range of >350 to $<450^\circ\text{C}$.

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DATE: Thursday, October 11, 2007

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<input type="checkbox"/>	L13	l6 and 420/8.ccls.	10
<input type="checkbox"/>	L12	l6 and 420/\$.ccls.	157
<input type="checkbox"/>	L11	l6 and (burring or phosphate)	50
<input type="checkbox"/>	L10	L9 and (burring or phosphate)	14
<input type="checkbox"/>	L9	L6 and 148/320.ccls. and (ferrit\$2 adj grain)	147
<input type="checkbox"/>	L8	L6 and 148/320.ccls. and (ferrit\$2 adj grain)	147
<input type="checkbox"/>	L7	L6 and 148/320.ccls.	151
<input type="checkbox"/>	L6	steel and (c or carbon) and (mn or manganese) and (al or aluminum) and (ferrit\$2 near grain)	1157
		<i>DB=EPAB,JPAB,DWPI; PLUR=YES; OP=OR</i>	
<input type="checkbox"/>	L5	l1 same (burring or phosphate)	5
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<input type="checkbox"/>	L3	steel same (c or carbon) same (mn or manganese) same (al or aluminum) same (ferrit\$2 adj grain) same (bainit\$2 or martensit\$2)	39
<input type="checkbox"/>	L2	steel same (c or carbon) same (mn or manganese) same (al or aluminum) same (ferrit\$2 adj grain)	285
<input type="checkbox"/>	L1	steel same (c or carbon) same (mn or manganese) same (al or aluminum) same ferrit\$2 same grain	891

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